

Specification

Please amend the paragraph starting at line 21, page 8 to read as follows:

~~Figure 7~~ Figure 6 illustrates a head 26C with a trailing shield pedestal 44C that has a curved surface where it is stitched to the return pole piece 43. A curved trailing shield pedestal is preferred. If the coil is fabricated first and protected with hard-bake, the shield stitch will be curved as a result of the shrinkage of the hard-bake.

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Please amend the paragraph starting at line 26, page 8 to read as follows:

Sliders with any of the embodiments of the write head described above can have the read head fabricated first or second. In turn this means that in operation in a storage device, a point on the recording media can pass under the read head first or the write head first depending on the design option. If the read head is fabricated after the write head, the S1 shield will be adjacent to the return pole piece 43 which causes no particular problems. However, if the read head is fabricated first as in head 26D shown in ~~Figure-8~~ Figure 7, the S2 shield will be adjacent to the flux carrying pole piece 41. A potential problem with embodiments with the main pole (or writing pole) adjacent to the sensor shields and only one coil is that there will be some unwanted field between the sensor shields and the soft underlayer of the medium. In addition, the total flux between the shields and the soft underlayer adds to the flux from the main pole in terms of what total flux must be returned from the soft underlayer to the return pole, thus increasing the undesirable field at the return pole which might erase data if it is too large. In order to allow this simple geometry to work, the distance between the main pole and the sensor shields is made large enough that the magneto-motive force at the shields will be less than about 10 percent of that at the main pole, and thus the undesired field at the sensor will be less than 10 % of the write field. This design rule is met when the reluctance between the main pole and the shields is approximately nine times or more than the reluctance between the shields and the soft underlayer. In a coarse approximation, the reluctance between two magnetic elements which are substantially parallel is the distance between them divided by the area of overlap of the elements. Thus, the distance between the main pole and the shields should be greater than nine times the head-to-underlayer spacing times the length of main pole yoke times half the width of the main pole yoke at the back gap divided by the product of the width of the sensor shields at the air-bearing-surface and the thickness of those shields. The upper limit on that thickness is set by concerns that the distance between write and read heads not be so large that other problems arise such as lithographic misalignment between the read and write heads. In other words, the thickness should be chosen to be no larger than required to meet the reluctance requirement just stated.

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